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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,894	11/24/2003	Deepak M. Srinivasa	JP920020187US1	5307
39903	7590	04/03/2007	EXAMINER	
ANTHONY ENGLAND			LIU, LIN	
PO Box 5307			ART UNIT	
AUSTIN, TX 78763-5307			PAPER NUMBER	
			2145	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/720,894	<b>Applicant(s)</b> SRINIVASA, DEEPAK M.	
	<b>Examiner</b> Lin Liu	<b>Art Unit</b> 2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

**DETAILED ACTION**

1. This office action is responsive to communications filed on 11/24/2003.

Claims 1-14 are pending and have been examined.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 6 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 6 recites the limitation "the sequencing relation specifies" in line 1. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 10 recites the limitation "the global measure of complexity" in line 1. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 101***

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 1-14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

With regard to **claim 1**, the instant claim is drawn towards a method for use in assessing the relative complexity of different options for performing a task. For a method claim to be found statutory, it must have a useful, concrete, and tangible result. In this case, the result of the instant claim is "determining complexity measures associated with performing the task using different combinations of recipes for constituent actions of the task,...". This result is useful and concrete, but is not tangible. For a result to be tangible, it must have some real-world impact or be available for use outside of the system. Determining complexity measures associated with performing the task is merely finding different combination of the recipes without storing or displaying that finding or acting upon the combination of the recipes, which means that the determining is never used or presented in a fashion that can be used.

**Claims 2-10**, which depend from claim 1, are rejected for the same rationale as in claim 1.

With regard to **claims 11 and 12**, the instant claims are directed towards a computer software recorded on a medium; this medium can be any portable storage medium or transmission signal (see Specification, paragraph 149, since the computer software program stored in a computer system is accessed by other computer systems from the internet, the transmission of the computer software from one system to another is a transmission signal at this point, which can also be the medium that is used to stored the computer software). Claims directed towards software alone refer to functional descriptive material, which is per se non-statutory.

Furthermore, the instant claims also do not produce a tangible result.

Determining complexity measures associated with performing the task is merely finding different combination of the recipes without storing or displaying that finding or acting upon the combination of the recipes, which means that the determining is never used or presented in a fashion that can be used.

With regard to **claims 13 and 14**, the instant claims are directed towards a computer system in assessing different options for performing the task. This system can be software alone (see Specification, paragraph 143, operating system) that is not recorded on any type of storage medium. Claims directed towards software alone refer to functional descriptive material, which is per se non-statutory.

Furthermore, the instant claims also do not produce a tangible result.

Determining complexity measures associated with performing the task is merely finding different combination of the recipes without storing or displaying that finding or acting upon the combination of the recipes, which means that the determining is never used or presented in a fashion that can be used.

### ***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims **1-5, 6, 9, 10-14** are rejected under 35 U.S.C 102 (b) as being anticipated by **Reiffin (Patent no.: US 6,330,583 B1)**.

Consider **Claim 1**, Reiffin teaches a method for assessing the relative complexity of different options for performing a task, the method comprising the steps of:

defining the task as a sequenced set data structure that specifies actions of the task (Reiffin, col. 2 lines 19-33, and col. 4, line 64 to col. 5, line 8, noted that a large compute-intensive task is partitioned into a plurality of smaller subtasks), and sequence information that specifies the order in which particular actions are to be performed (Reiffin, col. 2 lines 19-33, and col. 4, line 64 to col. 5, line 8, noted that these subtasks are stored in the form of a queue, which implies that the subtasks would be performed in the order that's being fetched out of queue);

storing recipes available for performing constituent actions of the task as sequenced set data structures that specify subactions of the recipes for the constituent actions (Reiffin, col. 2 lines 19-33, and col. 4, line 64 to col. 5, line 8, noted that a large compute-intensive task is partitioned into a plurality of smaller subtasks and stored a queue), and sequence information that specifies the order in which the subactions are to be performed (Reiffin, col. 2 lines 19-33, and col. 4, line 64 to col. 5, line 8, noted that the task is partitioned into portion of data and program code and stored in a network directory of a disk drive in the form of a queue); and

determining complexity measures associated with performing the task using different combinations of recipes for constituent actions of the task, based upon complexity measures of actions specified by respective combinations of available

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recipes (Reiffin, col. 2 lines 26-33, and col. 5, lines 3-8, noted that the a computer node or agent searches for an available subtask waiting in the queue and copies of the subtask program and data to the node to be executed concurrently with the local task in the foreground and background).

Consider **claim 2**, Reiffin teaches the method as claimed in claim 1, wherein complexity measures for actions are defined in terms of the complexity measures of available recipes for performing the actions, and complexity measures for recipes are defined in terms of the complexity of the subactions of the recipe (Reiffin, col. 2 lines 19-33, and col. 4, line 64 to col. 5, line 8, noted that a large compute-intensive task is partitioned into a plurality of smaller subtasks and stored a queue).

Consider **claim 3**, Reiffin teaches the method as claimed in claim 1, further comprising the steps of:

determining predetermined complexity measures for basic actions that are not specified by a recipe (Reiffin, col. 5, lines 23-39, determination of whether a local task needs to be executed during the next clock tick); and

determining specified complexity measures for contracted actions that are performed by a different agent (Reiffin, col. 5, lines 55-62, noted the node or agent determines as to whether there is a network subtask needs to be performed in the next timeslice).

Consider **claim 4**, Reiffin teaches the method as claimed in claim 1, further comprising the alternating steps of:

updating complexity measures for recipes in relation to actions whose complexity measures are determined (Reiffin, col. 4, lines 33-40, noted that at each timeslice the counter is reset so that the operation is iterated over again); and

updating complexity measures for actions in relation to recipes whose complexity measures are updated (Reiffin, col. 4, lines 48-67, noted that at each series of timeslice, workstation checks whether a remote subtask is available to be executed concurrently with the local task).

Consider **claim 5**, Reiffin teaches the method as claimed in claim 1, wherein the complexity measures associated with a particular action (Reiffin, col. 3, lines 11-15, concurrent processing of local tasks and remote subtask) performed by a particular agent (Reiffin, col. 3, lines 16-20, the workstation that is performing the concurrent processes) is based upon the complexity measures for each of the recipes for that action (Reiffin, col. 5, lines 55-62, determination as to whether there is a remote subtask needs to be performed by the workstation).

Consider **claim 6**, Reiffin teaches method as claimed in claim 1, wherein the sequencing relation specifies, for pairs of actions (Reiffin, col. 3, lines 16-20, concurrent processing of local tasks and network subtask), that one specified action is sequenced before another specified action (Reiffin, col. 3, lines 1-11, noted that the local task is executed in one timeslice and the remote task is executed during the next timeslice.).

Consider **claim 9**, Reiffin teaches method as claimed in claim 1, further comprising the step of delegating the defined task (Reiffin, col. 4, line 19-32, a large compute-intensive task) to a primary agent for execution of the task by at least one of



the primary agent (Reiffin, col. 4, line 28-32, the network workstation) and one or more contracting agents (Reiffin, col. 4, line 19-28, the subtasks are distributed to other computers of the network).

Consider **claim 10**, Reiffin teaches The method as claimed in claim 1, further comprising the step of performing the defined task (Reiffin, col. 4, lines 19-32, a large compute-intensive task) by executing a series of actions for which the global measure of complexity for the task is determined to be a minimum (Reiffin, col. 2, lines 60-67, the complex operation is minimum when there is no remote subtask available, where the workstation only executes the local task).

**Claim 11** lists all the same elements of **claim 1**, but in a computer software form rather than method form. Therefore, the supporting rationale of the rejection to **claim 1** applies equally as well to **claim 11**.

**Claim 12** lists all the same elements of **claim 1**, but in a computer software code form rather than method form. Therefore, the supporting rationale of the rejection to **claim 1** applies equally as well to **claim 12**.

**Claim 13** lists all the same elements of **claim 1**, but in a computer system form rather than method form. Therefore, the supporting rationale of the rejection to **claim 1** applies equally as well to **claim 13**.

**Claim 14** lists all the same elements of **claim 1**, but in a computer system form rather than method form. Therefore, the supporting rationale of the rejection to **claim 1** applies equally as well to **claim 14**. Furthermore, Reiffin also discloses a logic element (Reiffin, fig. 2, central processing unit), a memory (Reiffin, col. 4, line 64 to col. 5 line 3,

network directory disk drive) and a data processor (Reiffin, fig. 2, central processing unit).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Reiffin (Patent no.: US 6,330,583 B1)** in view of **Kamps (Patent no.: US 6,915,212 B2)**.

With respect to **claim 7**, Reiffin teaches all the claimed limitation with the exception that he does not explicitly teach a method of defining a sequenced set data structure as  $S=(A, M)$ , in which A is a multi-set element and M is a sequencing relation that specifies an ordered sequence of the elements A in the sequenced set S.

In the same field of endeavor, Kamps teaches a method of defining a sequenced set data structure (Kamps, fig. 6 and col. 7, lines 5-28) as  $S=(A, M)$ , in which  $A$  is a multi-set element (Kamps, fig. 6, nodes 1 to  $N$ , 440a to 440d) and  $M$  is a sequencing relation that specifies an ordered sequence of the elements  $A$  in the sequenced set  $S$  (Kamps, fig. 6, nodes 440a-440d, noted that it is numbered in sequence of node 1 to node  $N$ ).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the method of defining a sequenced set data structure as taught by Kamps in Reiffin's invention in order to distribute the data transfer across the network and reduce the burden on a master node (Kamp, col. 7, lines 23-26).

With respect to **claim 8**, Reiffin teaches all the claimed limitation with the exception that he does not explicitly teach a method of defining a sequencing relation for the sequenced set data structure  $S$  for two elements  $a_i$  and  $a_j$  of multi-set element  $A$ , such that  $a_i$  is sequenced before  $a_j$  in set  $A$  under the relation  $M$ .

In the same field of endeavor, Kamps teaches a method of defining a sequencing relation for the sequenced set data structure (Kamps, fig. 6 and col. 7, lines 5-28)  $S$  for two elements  $a_i$  and  $a_j$  of multi-set element  $A$  (Kamps, fig. 6, node 1 440a, and node 2 440b), such that  $a_i$  (Kamps, fig. 6, node 1 440a) is sequenced before  $a_j$  (Kamps, fig. 6, node 2 440b) in set  $A$  under the relation  $M$  (Kamps, fig. 6, and col. 7, lines 11-12, noted that node 1 440a is sequenced before node 2 440b, and data is first served to node 1 then to node 2).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the method of defining a sequenced set data structure as taught by Kamps in Reiffin's invention in order to distribute the data transfer across the network and reduce the burden on a master node (Kamp, col. 7, lines 23-26).

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Sanchez, II et al (Patent no.: US 7,188,343 B2) discloses a distributable multi-daemon configuration for multi-system management.
- Schneiderman et al (Publication No.: US 2002/0156932) discloses a method apparatus for providing parallel execution of computing tasks in a network environments using autonomous mobile agents.
- Zhu et al (Publication no.: US 2003/0167293 A1) discloses a fault tolerant server architecture for collaborative computing.
- Fromherz et al. (publication no.: US 2003/0120620 A1) discloses a problem partitioning method for problem solving in a computer system.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lin Liu whose telephone number is (571) 270-1447.

The examiner can normally be reached on Monday - Friday, 7:30am - 5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on (571) 272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

L. Liu  
03/29/2007

  
JASON CARDONE  
SUPERVISORY PATENT EXAMINER